

Unit 10

Day 6

More Absolute Value Equations

1)

$$|5x-1| = |-2x+1|^2$$

$$5x-1 = (-2x+1)^2$$

$$5x-1 = 4x^2 - 4x + 1$$

$$0 = 4x^2 - 9x + 2$$

$$0 = (4x-1)(x-2)$$

$$4x-1=0 \quad x=2$$

$$x = \frac{1}{4}$$

or

$$5x-1 = -(-2x+1)^2$$

$$5x-1 = -(4x^2 - 4x + 1)$$

$$5x-1 = -4x^2 + 4x - 1$$

$$+4x^2 + x = 0$$

$$x(4x+1) = 0$$

$$x=0$$

$$x = -\frac{1}{4}$$

$$\left\{ \frac{1}{4}, 0, 2 \right\}$$

2)

$$3|2x+1| = |2x+1|^2$$

$$\text{let } y = |2x+1|$$

$$3y = y^2$$

$$0 = y^2 - 3y$$

$$0 = y(y-3)$$

$$y=0$$

$$y=3$$

$$0 = |2x+1|$$

$$3 = |2x+1|$$

$$0 = 2x+1$$

$$3 = 2x+1$$

$$x = -\frac{1}{2}$$

$$2 = 2x$$

$$1 = x$$

$$-3 = -2x+1$$

$$-4 = 2x$$

$$-2 = x$$

$$\sum \left\{ -\frac{1}{2}, 1, -2 \right\}$$

$$3) \quad |1-3x|^2 - 3|1-3x| - 10 = 0$$

$$\text{let } y = |1-3x| \quad y^2 - 3y - 10 = 0$$

$$(y-5)(y+2) = 0$$

$$y = 5 \quad y = -2$$

$$|1-3x| = 5 \quad |1-3x| \neq -2$$

$$1-3x = 5 \quad 1-3x = -5 \quad \emptyset$$

$$-3x = 4 \quad -3x = -6$$

$$\left\{ -\frac{4}{3}, 2 \right\} \quad x = -\frac{4}{3} \quad x = 2$$

HOMEWORK:

Wksht 38,43-47 all (copied from a textbook)

Wksht Abs Value Equations: 1-12